

FOR BETTER NAVION FLYING

COLD WEATHER POWERPLANT OPERATIONAL NOTES

When operating at temperatures of 32 degrees Fahrenheit or below, it is advisable to start and stop the engine with propeller in high pitch (control all the way back). The reason for this is if the propeller were left in low pitch under such conditions, oil in the propeller control unit, or actuating cylinder, may congeal before the next engine start, making it difficult for the propeller to change pitch. After starting in high pitch, wait until oil temperature indicates a definite rise before moving propeller control to the low pitch position. Then exercise propeller through three or four complete cycles to circulate warm oil through propeller control element.

Since battery current conservation is especially important in winter, it pays to make every preparation possible to insure a successful engine start on the first or second attempt. Before starting engine on a cold day, pull propeller through five or six revolutions. The ease with which this can be done will help to determine whether or not it will be necessary to use any engine compartment heat prior to starting. When necessary, heat engine compartment until engine can easily be pulled through by hand. In very cold weather it is advisable to preheat the engine oil prior to any starting attempt. These precautions will not only make starting easier, but will also lengthen the service life of the engine by insuring proper lubrication to all moving parts.

It should be remembered that it is very easy to flood an engine during a cold start as the fuel does not vaporize as readily in cold air; therefore, it is often wiser to leave the mixture control in the "Idle Cutoff" position until after the engine starts to run on the prime. Prime several strokes before engaging starter. Press starter control; then turn ignition switch to "BOTH". Move mixture control to full rich as soon as engine starts. Prime as required throughout start and for first few minutes of operation. Some pilots have found that by pulling the carburetor heat control full on immediately after start makes for a smoother running engine during the warm-up period; however this method should be used with discretion and with one eye on the cylinder head temperature gauge.

Maintain engine RPM of from 800 to 1000 during warm-up period. Before take-off, oil temperature should show a definite rise. When oil pressure reaches normal range and oil temperature has indicated a definite rise, move propeller control to low pitch position.

Avoid engine overcooling during letdown by turning carburetor heat on during final approach. After landing apply brakes intermittently and carefully. Move propeller control to full decrease RPM position before stopping engine. DO NOT set parking brake as snow or slush on warm brakes will melt and subsequently freeze.

DON'TS FOR SAFETY FIRST UNDER ICING CONDITIONS (Reprint from Civil Aeronautics Journal)

The following is a list of winter precautions familiar to most experienced pilots, but we believe they bear repeating here as a reminder to all pilots that winter flying does require a little more care than the fair weather summer kind.

On the Ground

1. Don't attempt take-off with any frost on wings or tail surfaces.
2. Don't attempt take-off with any loose snow on the wing or tail surfaces as it may be covering

a hard ice formation caused by melted snow which has refrozen. Loose snow also may pack between the ailerons and the wings.

3. Don't taxi fast over pools of water when temperature is near freezing; splash may form ice on wings and stabilizer or the splash may ice up brakes or retracting mechanism of landing gear.
4. Don't take-off without first testing all controls to insure that hinges have not frozen.

5. Don't warm up engine in a fog when temperature is near freezing. Ice may form on propeller and on wing and on stabilizer in back of propeller blast.
6. Don't attempt take-off with any ice on the airplane or propeller.
7. Don't take-off into a known icing condition when plane is not equipped with all modern deicing and antiicing aids.
8. Don't plan flights through continuous icing zones even though ship is equipped with all deicing and antiicing aids.
9. Don't taxi fast on an ice-coated runway or taxi strip.
10. Don't apply brakes suddenly on an ice-coated runway after plane is on the ground. Use full effective runway. Radio for condition of runway before landing.
11. Don't take-off during a wet snow condition.

3. Don't fly parallel to a front under icing conditions.
4. Don't fly in clouds at a low altitude above the crests of ridges or mountains. Four or five thousand feet above ridges should be maintained when flying on instruments through clouds at temperatures below 32 degrees Fahrenheit.
5. Don't fly into cumulus clouds at low temperatures. Heavy glaze ice may be encountered.
6. Don't make steep turns with ice on the airplane.
7. Don't practice stalls or spins with ice on the airplane.
8. Don't land with power off when ice has formed on the wings and on exposed surfaces of the plane.
9. Don't try to climb too fast when ice has formed on plane, since stalling speed is higher than normal.
10. Don't forget when flying under icing conditions that gasoline consumption is greater, due to increased drag and additional power required.
11. Don't attempt a cross-country flight in fall or winter without first consulting the nearest U.S. Weather Bureau Airway Forecast Center to obtain a forecast as to expected icing conditions.

In the Air

1. Don't continue flight into a region of known icing conditions.
2. Don't fly through rain showers or wet snow when temperature at flight level is near freezing.

